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AUTHOR Harris, Sandra McMeans
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ABSTRACT

This study investigated whether gender differences exist in the factors thought to influence a person's desire to pursue higher education. A 152-item multiple choice questionnaire, completed by 346 students enrolled at a large university during 1998, was the source of the data. The independent variable was gender; dependent variables were self-efficacy, locus of control, family support, peer influence, relative functionalism, glass ceiling effect, secondary school support, preparation for college, financial aid concerns, and sister's, mother's, and father's influence. Data was organized in 9 scales and 3 subscales. Reliability estimates for the nine scales and three subscales of the questionnaire ranged from .66 to .90. Data analysis revealed that males and females differed on 8 of 30 demographic variables. Univariate tests revealed significant gender differences on 6 of 12 dependent variables. Females scored significantly higher than males on the self-efficacy, family influence, mother's influence, secondary school support, preparation for college, and peer influence scales. Findings suggest that the factors influencing individuals to pursue higher education may be different for females than for males and support the contention that family has a strong impact on student achievement. (Contains 86 references.) (SM)

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Abstract

The purpose of this study was to investigate whether gender differences existed in data collected by the Factors Influencing Pursuit of Higher Education (FIPHE) Questionnaire; a questionnaire that investigates the factors thought to influence a person's desire to pursue higher education. Participants were 346 students enrolled at a large, traditional land-grant university during the 1998 fall quarter. A cross-tabulation procedure and a chi-square analysis revealed that males and females differed on 8 of 30 demographic variables. Reliability estimates for the 9 scales and 3 subscales of the questionnaire ranged from .66 to.90. A multivariate analysis of variance revealed a Hotellings T^2 ($F = 3.53$, $df = 12$) that was significant at $p < .001$. Univariate tests revealed significant gender differences on 6 of 12 dependent variables. Results tended to favor females. Findings suggest that factors which influence individuals to pursue higher education may be different for females than for males. Implications for the design of college recruitment and retention programs.

Pursuing Higher Education: Are There Gender Differences in the Factors That Influence Individuals to Pursue Higher Education?

"Higher education is a valve that opens the pipeline to jobs, jobs that keep the American dream alive. If large segments of the population are under represented in higher education, they will also be under represented in the job market" (Wilcox & Koehler, 1996, p. 87). In a recent meeting of the United Nations Educational, Scientific, and Cultural Organization, educators from more than 180 countries agreed that "More people, especially women and minority groups and people in developing countries, will need post-secondary education to be professionally and technologically skilled" (Murray, 1999, January, p. 11) workers of the 21st century.

While most people are aware of the social inequities afforded women in nonindustrialized countries, few are aware of the scope of gender inequities in industrialized nations. For example, women comprise more than 50% of United States population (Congressional Budget Office (CBO), 1992) yet their employment tends to be concentrated in low paying, low power, and low prestige jobs (Astin & Malik, 1994). Lie and Malik (1994) reported that women in 17 other countries were also under represented in high power, high prestige jobs as well.

Some who have studied the job and pay inequities between men and women argue that the lower occupational status of women is a reflection of the lower educational attainment of women. In some regards this statement is true. On the one hand, while women are more likely than men to graduate from high school and subsequently enter college, women are less likely than men to graduate from college (Chliwiniak, 1997; Rosen & Aneshensel, 1978; Wolf-Wendel, 1998). Furthermore, women are less likely to pursue technical areas of study such as engineering and computer science (Farmer, 1995; Tangri, 1972; American Association of University Women

(AAUW), 1995), and they are also less likely to be represented in upper levels of management, especially in the area of academia (Chliwniak, 1997; Rosen & Aneshensel, 1978; Wolf-Wendel, 1998). Hence, even when women successfully graduate from college and enter the work force, they often compete in lower paying jobs than their male counterparts.

While the Civil Rights Act has done much to remove the barriers to professional success that have traditionally impeded the progress of American women, little has changed in terms of achieving equity among the sexes in educational outcomes. Considering the increased opportunity now afforded women, the question becomes, Why haven't women achieved greater equity in the job market and in areas such as higher education? While this inequity is an issue of great concern, little has been done to assess, quantitatively, the factors which influence individuals to pursue higher education or whether these factors differ for males and females. It is only with a firm understanding of these forces that educators can begin designing recruitment and retention programs that will ultimately lead to their successfully drawing a larger number of women into and graduating them from the classrooms of America's colleges and universities.

Theoretical Background

Some researchers contend that the failure to achieve job and pay equity stems from the socialization process of women (Bardwick, 1971; Cohen, 1987; Farmer, 1995; Hoffman, 1972; Maccoby & Jacklin, 1974; Rosen & Aneshensel, 1978; Santrock, 1997). Within a given society, males and females are encouraged to engage in different behaviors. According to Farmer (1995), boys and girls learn at an early age which careers are acceptable for them and which are not. Hence, the socialization process retards women's academic development early in life and continues to affect them throughout their academic and professional careers. The socialization process affects

many variables which influence a person's decision to pursue higher education; among which are constructs such as self-efficacy and locus of control.

Self-efficacy. Bandura (1997) defined self-efficacy as one's beliefs about one's ability to perform specific tasks that are indicative of certain behaviors. Several researchers (Brown, Lent, & Larkin, 1989; Lent, Brown, & Larkin, 1984; Lent, Larkin, & Brown, 1989; Multon, Brown, & Lent, 1991) have delineated the relationship between self-efficacy and performance indicators such as academic performance, academic persistence, and career choices. For instance, research by Betz and Hackett (1981) revealed gender differences in occupational self-efficacy. A study by Peterson (1993) revealed that "men had higher levels of self-efficacy for male-dominated occupations, and women had higher levels of self-efficacy for female dominated occupations" (p. 662). Betz (1997) further suggested that women's insufficient experience in science and mathematics might be a factor which causes them to have a lower level of self-efficacy in those fields. Consequently, the lowered self-efficacy may steer women away from choosing majors in those career areas. Several researchers have found that self-efficacy is related to anther concept known as locus of control (Bandura, 1993; Schunk, Hanson, & Cox, 1991).

Locus of Control. "The locus of control concept refers to individually perceived sources of control over certain behaviors or events" (Chapman & Boersma, 1979, p. 250). Research on gender differences in locus of control has produced mixed results. While some researchers have asserted that females are more internal in their locus of control than males (Cairns, McWhirter, Duffy, & Barry, 1990), others have failed to find significant gender differences (Adame, Johnson, & Cole, 1989; Dellas & Jernigan, 1987). In a review of 22 studies, Archer and Waterman (1988) found that results from 15 of the articles failed to reveal gender differences in

locus of control; results from 6 studies indicated that males were more internal in locus of control; and results from one study showed females to be more internal in their locus of control. Results from other studies revealed that as individuals mature and transition into adulthood, their locus of control becomes more internal (Chapman & Boersma, 1979; Chubb & Fertman, 1997; Pascarelli & Terenzini, 1991). In addition to understanding how constructs such as self-efficacy and locus of control influence achievement motivation, researchers must also understand how social factors such as family background, peer influence, and culture impact a person's decision to pursue higher education.

Family background. The positive effect of family support on student achievement has been well-documented (Haveman & Wolfe, 1995; Thompson et al., 1988). However, for some individuals pursuing higher education, that support may not be easy to obtain. Some researchers have shown that obtaining family support may be especially problematic for first-generation college students (Espinosa, 1995; Ortiz, 1995; Renchler, 1990; Rendon & Valadez, 1993). In addition, parental background variables such as educational level and occupational status have also been shown to have an effect on children's future occupational status and income level (Haveman & Wolfe, 1995). Several studies have revealed that mother's educational attainment and occupational status are often the most important predictors of children's school achievement (Haveman & Wolfe, 1995; Peters & Mullis, 1997; Thompson et al., 1988). Of the many family background variables, variables such as parental involvement, parental income, and parental expectations have been shown to have a significant impact on achievement motivation.

Parental involvement. Parents exert a strong influence over their children's development, especially in the area of occupational and career exploration (Cohen, 1987). Through their

involvement with their children, parents are the first to expose their children to sex role socialization (Farmer, 1995). According to Hill and Duncan (1987), through the socialization process "parents' actions set standards that children will attempt to follow as adults, and . . . this is particularly true with regard to parent-child pairs of the same sex" (p. 58). From birth, some parents discourage females from engaging in actions that are considered indigenous behaviors of the male domain (Rothenberg, 1997). Research results have further shown that fathers actively encourage their children to adhere to socially and culturally accepted norms of behavior (Santrock, 1997).

Parental income. Lankard (1995) has posited that family income is a factor which has a significant effect on the career development of youth. As a social variable, family income is significantly affected by factors such as parental education and parental occupation. These factors, when combined, determine a family's socioeconomic status (SES). A study by Mortimer (1992) provided data which revealed that the effect of family SES on career development is especially critical for females. Lankard (1995) speculated that this effect might be due to the tendency of families with limited resources to grant first priority for the allocation of those resources to males.

Parental expectation. Parental expectation has been defined as a parent's "Future aspirations or current expectations for children's academic performance" (Christenson et al., 1992, p. 178). In general, past research results have revealed a strong, positive correlation between high academic achievement and high parental expectations (Boersma & Chapman, 1982; Cohen, 1987; Peters & Mullis, 1997; Scott-Jones, 1984; Seginer, 1986; Thompson, Alexander, & Entwisle, 1988). "The relationship between parent expectations and achievement appears to be extremely complex and may involve many mediating variables" (Christenson et al., 1992, p. 182). Parental expectation for achievement also tends to be mediated by both the gender of

the parent and the gender of the child. Rosen and Anehensel (1978) found that like-sex parents tend to have a greater effect on children's academic achievement. These researchers found that mothers have a substantially greater effect on their daughter's academic achievement than do fathers. In a more recent study, Axin, Duncan, and Thornton (1997) found that mothers who felt that their children should go to college had a positive effect on their sons' educational attainment.

Peer Relations. When it comes to academic achievement, peer influence appears to be a reciprocal relationship (Cohen, 1987). Data by Evans, Oates, and Vaden (1990) revealed that students perform at a higher level if their fellow students are high achievers. Patterson, Kupersmidt, and Vaden (1990) also found that females generally receive higher peer ratings than their male counterparts. The same researchers found that females in their study also had higher levels of school achievement. Another researcher (Santrock, 1997) found that peers tend to reinforce gender role behavior. As researchers attempt to understand the impact of peer relations on achievement motivation, researchers must also understand that culture not only mitigates the nature of peer interactions, it also influences achievement motivation,

Cultural determinants. Culture is defined as "the behavior patterns, beliefs, and all other products of a particular group of people that are passed on from generation to generation" (Santrock, 1997, p. 13). For instance, the belief that males excel in mathematics, science, and technical careers while women excel in arts-related subjects are cultural beliefs which have been propagated for years (Sanders, 1997).

In higher education, certain women may experience a clash of cultures when they enter the halls of post secondary education. For instance, Hispanic women in higher education often find themselves straddling the horizons of two opposing cultures. While the Hispanic female

lives in a culture which values the traits of belonging and cooperation, she has to operate in an academic environment where the emphasis may be on competition and the individual (Carter et al., 1988). Additionally, Hispanic, Asian, and Native American women come from cultures in which women are discouraged from speaking out against and challenging authority figures; yet they are encouraged to engage in such behaviors in the classrooms of higher education (Espinosa, 1995; Ortiz, 1995). Consequently, the duality of expectations often forces minority women to choose between their personal lives and their professions.

Because culture has such an influential effect on one's beliefs and value systems, one's culture also affects one's beliefs about education. The coming paragraphs present information on how culture shapes a person's beliefs regarding the relative function of education and the glass ceiling phenomenon.

1. Relative functionalism. This concept can be described as the way individuals perceive the function of education in comparison to other noneducational pursuits. To the degree that many minorities often perceive limited chances of success in areas outside of the educational arena, these individuals typically turn to academic pursuits in order to reach their aims of self-improvement. Consequently, some minority groups may see education as a functional means of overcoming their perceived limitations in other areas (Sue & Okazaki, 1990).

2. Glass ceiling effect. The glass ceiling effect occurs when a person or group of persons perceive the opportunities for success in a particular job or jobs to be blocked. According to Mickelson (1990), this concept partly explains why the academic performance of African, Hispanic, and Native American students lags behind that of their Asian and Anglo American counterparts. The perceived glass ceiling effect may engender certain minority groups with a

sense of hopelessness and despair when it comes to competing in the job market for jobs traditionally held by Anglo Americans (Fordham & Ogbu, 1986).

When viewed collectively, the data regarding culture and achievement motivation reveal that culture has a significant impact on a person's motivation and desire to engage in the pursuit of higher education. Because the attitudes of a culture are reflected in its educational process, one must understand how the educational process affects a person's motivation to achieve and possibly a person's desire to pursue higher education.

Educational Process

During the first 20 years of life, the average American child spends approximately 15,000 hours in an academic setting. "Thus schools represent a primary socializing influence that has enormous impact on the course of people's lives and, in turn, on society" (Deci, Vallerand, Pelletier, & Ryan, 1991, p. 325). Because schools reflect the social practices of a give society, not all students receive fair and equitable treatment in school. For instance research reveals that gender and sex make a difference in both the elementary and the secondary schools (AAUW, 1995). Although males and females enter the educational process with roughly the same skills and abilities, and in some cases girls out perform males, by the end of the high school girls reportedly score lower on interpersonal measures such as self-concept, self-esteem, and self-efficacy. In addition, females tend to fall behind their male counterparts in academic areas such as science and mathematics (Sanders, 1997; AAUW, 1995). Data from other research has shown that for women, attending college may result in lower cognitive development, lower educational aspirations and attainment, lower self-esteem, and lower self-confidence (Sanders, 1997; Smith, Wolf, & Morrison, 1995; Wolf-Wendel, 1998; AAUW, 1995). The next paragraphs present a discussion of how elements of

the educational process such as teacher-student interactions, general preparation for college, and guidance and career counseling affect women's motivation to achieve.

Teacher and student interactions. "The expectations teachers have for their students and the assumptions they make about their potential have a tangible effect on student achievement" (Lumsden, 1997, p. 1). Because students tend to live up to the expectations of their teachers, teachers can foster either an environment of success or an environment of failure (Bamberg, 1994; Harris, Rosenthal, & Snodgrass, 1986; Lumsden, 1997; Schofield, 1997). Results indicate that "teachers hold expectations and employ teaching strategies and activities that systematically favor boys over girls" (Howe, 1997, p. 28). In particular, teachers tend to have higher expectations for males in the areas of math and science (Oakes, 1990). Other studies have shown that teachers show more preferential treatment toward males (Oakes, 1990; Rothenberg, 1997). Teachers tend to provide males more detailed and constructive feedback on their classroom performance than they provide to females (Orenstein, 1994; Rothenberg, 1997; Santrock, 1997; AAUW, 1995). The data further indicate that teachers tend to be more tolerant of classroom outbursts by males than they are of females. In addition, data from research by Santrock (1997) has shown that academically, boys are most often at the top of the class because they often receive more pressure to achieve than their female counterparts.

General preparation for college. Concerning the pursuit of high paying jobs in science and mathematics, women generally are not equipped during the secondary school years to pursue such majors in college (Betz, 1997; AAUW, 1995). To be successful in such majors, individuals should have completed four years of each in high school. Given that most women do not complete the prerequisite four years of science and mathematics in high school, they may tend to

shy away from such majors in college. When they do enter such majors, women's lack of preparation in high school may contribute to their subsequently dropping out of those majors.

Guidance and career counseling. Guidance and career counseling typically involves providing "services and programs to facilitate individuals' development and their ability to make optimal choices regarding their roles in occupational, familial, and social structures" (Ward, 1995, p.8). Because of their positions, secondary school counselors and college admission officers are in prime positions for influencing the career choices of American youth. In fact, some educators have likened school counselors and college admissions officers to being social engineers whose jobs consist of advising young people in matters relating to academic and career choice options engineers (Hoganson, 1996). Data by Betz (1997) revealed that females are frequently short-changed in the areas of guidance and career counseling. In general, females are not encouraged to seek the non-traditional, high paying jobs in areas such as science and mathematics (Howe, 1997; Oakes, 1990). Instead, females may be steered to seek the traditional, socially accepted, low-paying jobs more commonly held by women (Davis, 1997). "Documentation exists for the claim that women receive little or no support, if not downright discouragement, to succeed in nontraditional fields such as engineering" (Hackett, Betz, Casas, & Rocah-Singh, 1992, p. 529). Yet, even when the educational process is conducive to fostering achievement motivation and an individual is encouraged to pursue higher education, not all who desire to obtain a college degree will succeed in so doing. For some individuals, the lack of financial resources presents another barrier to the pursuit of higher education.

Availability of Financial Assistance

Probably the one variable with the largest impact on a person's participation in higher education is the availability of financial aid. Since 1976 the availability of financial aid has continually declined. Between 1980 and 1987 federal support of financial aid programs decreased by 11%. Yet the number of students needing financial aid increased by 20% (Donnelley, 1987). Similarly, Carter and Wilson (1993) reported that the 1990-dollar value of the Pell Grant was one fifth of the value it held in 1975. They also reported that the availability of college work-study programs has decreased by 50% since 1970. Not only has financial aid to students decreased over the years, funding for higher education, in general, has declined. Women's colleges, especially, have been hit hard by financial constraints. Since 1960 the number of women's colleges decreased from 233 in 1960 to just 84 in (Smith et al., 1995).

One researcher (Moran, 1987) has posited that even when financial aid is available, there are gender differences in the distribution of those resources. Women tend, in general, to be at a disadvantage when it comes to the issue of financial aid and the pursuit of higher education. Moran reported that in 1983,

> For every dollar a man receives, women receive 68 cents in college earnings, 73 cents in grants, and 84 cents in loans for low-income undergraduates. . . .The more significant differences between gender appear in discretionary programs like college work study, academic merit scholarships, research assistantships, and corporate benefit programs that pay tuition (p. 1).

In the area of athletic scholarships, Greenlee (1997) reported that nationwide, women athletes receive a little over one third of the money available in athletic scholarships. Data by Fenske, Hear,

and Curry (1985) indicated that women are five times more likely to be classified as independent students. Moran (1987) reported that at the freshman level "women are twice as likely to be classified as independent students (66 percent versus 34 percent), have greater financial need, have higher dropout rates, and pay a greater portion of their own college costs than dependent students" (p. 2). Davis (1997) further reported that freshman females are more likely than freshman males to report parental aid as their primary source of financial aid.

Purpose

Considering the research which has presented evidence to support the presence of gender inequities in higher education, the purpose of this study was to investigate whether gender differences exist in the factors that influence a person's decision to pursue higher education. The researcher used the FIPHE Questionnaire (Harris, 1998; Harris, 1999) to investigate this issue. The independent variable was gender and the dependent variables were self-efficacy, locus of control, family support, peer influence, relative functionalism, glass ceiling effect, secondary school support, preparation for college, and financial aid concerns. Additional measures of interest were sister's, mother's, and father's influence

Method

Participants

Participants were 346 college students enrolled at a large, traditional land-grant university during fall quarter 1998. Participants were recruited from a general studies psychology course and several sections of an educational psychology course.

Procedures

Participants were recruited through the course instructors. Each instructor read an announcement which detailed requirements for the study. Participants completed the questionnaires at home. Completed questionnaires were returned either to the instructors or to a place designated by the researcher. The questionnaires were coded to maintain the confidentiality of the participants. Each participant signed an informed consent statement. Participants were granted extra credit for returning completed questionnaires as determined by each instructor. Participants were also given the opportunity to enter their names into a drawing for $75.00.

Instrument

The FIPHE Questionnaire consisted of 152 multiple-choice, fill-in-the-blank, and true/false type items. The items were distributed among 9 scales and 3 subscales. The Self-Efficacy Scale consisted of nine items which measured a respondent's perceived competence in the respondent's college major. The Locus of Control Scale contained 10 items which assessed a person's perceived locus of control as it relates to pursuing higher education. The Family Influence Scale was composed of 28 items which assessed the degree to which family members influence a person's decision to pursue higher education. The Family Influence Scale consists of three subscales: the Sister's Influence Subscale contained three items which assessed the impact of sisters on a person's desire to pursue higher education. The Mother's and Father's Influence Subscales each consisted of 9 items which assessed the impact of mothers and fathers, respectively, on the participants' decision to pursue higher education. The Peer Influence Scale contained six items which assessed the degree to which peers influence a person's decision to pursue higher education. The Relative Functionalism Scale contained seven items which assessed a person's perception of the relative

function of higher education. The Glass Ceiling Effect Scale contained five statements that addressed the degree to which the participants perceived their opportunities for success in college to be limited. The Secondary School Support Scale consisted of 12 items which measured the degree to which individuals received adequate support from secondary school personnel such as teachers and guidance counselors. The Preparation for College Scale contained seven items that assessed the degree to which individuals perceived themselves to be prepared for the demands of college. The Financial Aid Concerns Scale was a seven-item scale that addressed the importance of financial aid for a person's pursuit of higher education.

Instrument Scoring

Participants completed the instrument by marking their responses on the questionnaire. Scores for each scale were obtained by summing the responses for items assigned to each scale. Negatively worded items were reverse coded prior to obtaining scale scores. Values for the items were coded as follows: (a) scoring for items in Section 2 were coded as strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1. Scoring for items in Section 3 were coded as T (true)= 4 and F (false) = 3. Instructions for the questionnaire stated that if an item did not apply to a respondent, the respondent was to leave it blank. This approach was taken because some of the items may not pertain to all respondents. For instance, some participants may not have sisters or brothers. In such cases the respondent would not be expected to respond to items which pertain to sisters or brothers. Instead, the more appropriate reply would be not applicable. Blank items were coded as missing data. Incomplete or multiple responses were also recorded as missing data. Missing data were handled through the a means imputation procedure. Imputation is

defined as "the estimation of a missing value and the subsequent use of that estimate in statistical analyses" (Allison & Gorman, 1993, p. 85). Item means were inserted for missing data.

Results

Data from the cross tabulation procedure revealed significant gender differences on 8 of the 30 demographic variables. Table 1 contains a summary of the chi-square results. Of those who reported SAT scores, 59% of males compared to 34% of females reported scores of 1150 or greater. Twenty five percent of males compared to 11% of females reported technical majors such as engineering, science, and mathematics. Conversely, 43% of females and 24% of males chose education as a major. Eighty percent of females and 59% of males reported that they intend to pursue a graduate degree. With respect to fathers' degree expectations, 53% of females and 35% of males indicated that their fathers expected them to pursue a graduate degree. For mothers' degree expectations, 50% of females and 35% of males reported that their mothers expect them to pursue a graduate degree. In the area of grade point averages, 63% of females and 40% of males reported college GPAs of 3.00 or higher. Likewise, 86% of females and 64% of males reported high school GPAs of 3.00 or higher. And for year in college, 42% of females and 29% of males indicated that they were a senior or above.

The reliability and item analyses revealed that the scales and subscales of the FIPHE Questionnaire contained good psychometric properties. Reliability estimates ranged from .66 to .90. A multivariate analysis of variance produced a Hotellings T-square value ($F = 3.52$, $df = 12$) that was statistically at $p < .001$. The follow-up univariate tests revealed significant gender differences on 6 of the 12 dependent variables. Table 2 and Table 3 present the summary descriptive statistics for the scales and subscales.

Table 1

Chi-Square Statistics for Demographic Variables

Variable	df	Chi-square	
Age	4	5.02	
Aptitude test score A (ACT)	4	7.46	
Aptitude test score B (SAT)	2	8.33	**
College major	8	39.54	*
Degree expectation A (personal)	4	17.05	**
Degree expectation B (father's)	4	10.73	
Degree expectation C (mother's)	5	11.35	**
Documented disability	1	5.47	**
Employment status	2	5.22	
Employed number of hours weekly	5	2.02	
Ethnicity/race	4	7.50	
Financial sources for college expenses	7	9.24	
Grade point average A (college)	5	21.58	*
Grade point average B (high school)	5	30.02	
Number of brothers	5	5.93	
Number of brothers who are college graduates	3	2.34	
Number of friends who are college graduates	5	2.32	
Number of grandparents who are college graduates	6	6.25	
Number of other relatives who are college graduates	5	.53	
Number of sisters	5	6.58	
Number of sisters who are college graduates	5	8.10	
Parents education A (father's)	3	1.41	
Parents education B (mother's)	4	2.05	
Parent's income	3	2.40	
Parents in the home	9	7.83	
Parent's occupation (father's)	3	7.38	
Parent's occupation (mother's)	5	5.16	
Personal income	5	11.46	**
Racial composition of high school graduated from	4	3.62	
Year in college	4	9.84	**

*p<.01
**p<.05.

Table 2

Univariate Test Results for Gender Across Measures of Interest

Gender X	MSE	F	Sig.	Eta^2	Power
Self-Efficacy Scale	104.49	10.98	<.001	.01	.91
Locus of Control Scale	8.39	.48	.48	.00	.11
Family Influence Scale	829.43	9.04	.00*	.03	.85
Peer Influence Scale	94.13	15.57	<.001	.04	.98
Relative Functionalism Scale	67.03	4.26	.04**	.01	.54
Glass Ceiling Effect Scale	5.96	.86	.36	.00	.15
Secondary School Support Scale	84.22	2.10	.15	.01	.30
Preparation for College Scale	2.97	2.09	.15	.01	.30
Financial Aid Concerns Scale	24.00	1.49	.22	.00	.23
Sister's Influence Subscale	22.84	7.51	.01*	.02	.78
Mother's Influence Subscale	53.04	4.88	.03*	.02	.60
Father's Influence Subscale	59.04	5.10	.01	.02	.62

Note: df = 1, N = 346.

*p < .05. **p < .01.

Table 3

Summary of Descriptive Statistics for Gender Across the Measures of Interest

		Male		Female		Total	
Scale	n	M	SD	M	SD	M	SD
Self-Efficacy	8	26.85	3.24	28.07	3.10	27.73	3.18
Locus of Control	10	33.97	4.12	33.63	4.11	33.72	4.11
Family Support	28	92.07	10.70	95.50	9.10	94.52	9.69
Peer Influence	6	20.57	2.72	21.72	2.35	21.34	2.51
Relative Functionalism	9	30.93	4.32	31.91	3.82	31.63	3.99
Glass Ceiling Effect	5	8.95	2.72	8.66	2.60	8.75	2.64
Secondary School Support	12	36.70	6.28	37.79	6.28	37.48	6.34
Financial Aid Concerns	7	17.55	3.76	18.13	4.11	17.97	4.01
Preparation for College	7	15.67	1.06	15.47	1.24	15.53	1.19
Sister's Influence Subscale	3	9.39	1.84	9.96	1.71	9.80	1.76
Mother's Influence Subscale	9	30.36	3.74	31.23	3.10	30.98	3.31
Father's Influence Subscale	9	27.73	3.82	28.64	3.22	28.35	3.42

Note. n = 99 for males; n = 247 for females; N = 346 for total sample.

Discussion

The results generated several significant differences in the demographic data that was collected. The finding that females reported higher GPAs than males at both the high school and college level supports research which indicates that females have greater competence in some achievement-related behaviors (McCornack & McLeod, 1988; Patterson et al., 1990). Because females in this study scored significantly higher than males on the Self-Efficacy Scale, the data contradict findings from other research which has shown that females score lower than males on domain specific self-efficacy measures (Betz & Hackett, 1981; Peterson, 1993). Data from the current study failed to reveal significant gender differences in the locus of control construct (Adame et al., 1989; Dellas & Jernigan, 1987).

Data from this study does support the contention that family has a strong impact on student achievement (Haveman & Wolfe, 1995; Hsiao, 1992; Li & Wojtkiewicz, 1992; Terenzini et al., 1994). Females scored significantly higher on the Family Influence Scale than males. The results suggest that, at least for this group, females received the stronger degree of encouragement and support from their families to pursue higher education. The study did not, however, assess the type of encouragement that was received. In addition, females scored higher on the Sisters' and Mother's Influence Subscales than did males. The researcher presented only one article which addressed siblings as being a form of peer influence (Schunk & Hanson, 1985). The influence of sisters on achievement motivation is an area which may warrant further research.

The significant effect for the Mother's Influence Subscale suggests that mothers have a stronger impact on their children's academic pursuits than do fathers (Axin et al., 1997; Dornbusch

et al., 1987; Peters & Mullis, 1997; Rosen & Aneshensel, 1978). This outcome also supports the hypothesis that mothers serve as stronger role models for their daughters than for their sons (Cohen, 1987; Rosen & Aneshensel, 1978). Females also scored significantly higher on the Farther's Influence Subscale than males. This finding contradicts research by Rosen and Anehensel (1978) which suggests that like-sex parents have a greater effect on children's achievement motivation.

The significant differences on the Peer Influence Scale supports research by Cohen (1987) which reported that females tend to score higher in peer ratings than males. As for the relative functionalism concept, the results revealed significant gender differences on this scale. Nothing was covered in the literature on this concept; perhaps gender and relative functionalism may pose an area of additional research.

The lack of significant gender differences on the Glass Ceiling Effect Scale contradicts Chliwniak's (1997) proposal that the lack of role models in certain fields may cause females to perceive a glass ceiling in those fields. Even with the lack of significant numbers of female role models in higher education (Carter & Wilson, 1993; Chliwniak, 1997; Howe, 1997; Klein & Ortman, 1994; Lie & Malik, 1994; Wolf-Wendel, 1998), a large number of females indicated that they intend to pursue advanced degrees. It is possible, however, that the results may be related to the fact that most of the females in this study had not yet to entered the world of full-time employment; consequently, they may have not yet experienced the glass ceiling phenomenon.

Data from this study also contradict previous findings which suggest that males are at a slight advantage in the areas of secondary school support and preparation for college (AAUW, 1995). Females in this study scored significantly higher than males on both the Secondary School

Support and Preparation for College Scales. Contrary to previous suggestions (Rothenberg, 1997), males in this study did not report having greater levels of support and encouragement for pursuing higher education at the secondary school level. Similarly, males in this study did not report a higher level of general preparation for college.

Limitations of the Study

While the findings of this study may contribute to an understanding of gender differences in the mechanisms which motivate individuals to pursue higher education, the results must be interpreted with caution. There are a number of factors which may limit the external validity of the results (Pedhazur & Schmelkin, 1991). For instance, while the researcher attempted to obtain a sample that was representative of the student population at that university, the sample was not selected randomly. In addition, the demographics of the participants in the current study were very similar. The majority of the subjects were from similar backgrounds in terms of family background and family income. Furthermore, 75% of the participants indicated that they were from traditional, two-parent homes, and over 50% of the participants were third generation college students.

Because of the uniqueness of the sample in terms of demographics, the findings of the current study might not be generalizable to a different sample, and a different sample could yield different results. Based on the results from the cross tabulation procedure, the results might be generalizable to traditional, unemployed college students across a range of college majors. The results should not be used to draw conclusions about minority students, nontraditional college students, or students with disabilities.

In addition, the large number of females and the large numbers of seniors included in the study may also have affected the results. Research by Pascarella and Terenzini (1991) revealed that attending college has a positive effect on a person's psychosocial development in constructs such as self-concept and self-esteem. Considering the psychosocial changes that occur during college, it is possible that such changes my have had an indirect influence on the variables investigated in this study. Because this study was not designed to assess the effects of age, the researcher cannot conclude whether or not the results were mediated by age. This is, however, an area may warrant further investigation.

Implications and Conclusions

The outcome of this study revealed that the factors which influence individuals to pursue higher education may be different for males and females. If this is the case, perhaps colleges and universities should design recruitment, orientation, and retention programs which are tailored to meet the interests and needs of specific audiences, rather than adopt a singe one-program fits all strategy. Data from this study and others could possibly be used to structure such programs.

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Author's Note

Sandra M. Harris is now at Troy State University Montgomery. Correspondence regarding this paper should be sent to: Sandra M. Harris, Ph.D., Troy State University Montgomery, PO Drawer 4419, Bldg. 136 Catoma Street, Montgomery, AL 36103. Address electronic mail to sharris@tsum.edu.